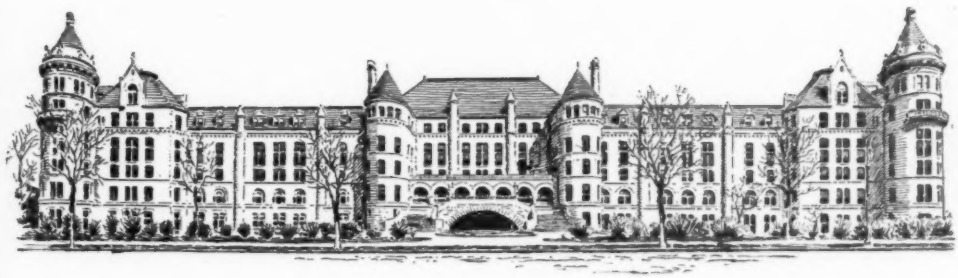
Volume II, Number 3 MARCH, 1902

THE AMERICAN MUSEUM JOURNAL



WITH SUPPLEMENTARY GUIDE LEAFLET ON

NORTH AMERICAN RUMINANTS

Published by the AMERICAN MUSEUM OF NATURAL HISTORY
New York City

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THE AMERICAN MUSEUM OF NATURAL HISTORY was established in 1869 to promote the Natural Sciences and to diffuse a general knowledge of them among the people, and it is in cordial coöperation with all similar institutions throughout the world. Since the Museum authorities are dependent upon private subscriptions and the dues form its members for procuring needed additions to its collections and for carrying on explorations in America and other parts of the world, the attention of persons interested in such matters is called to the brief statement of deeds and needs on the fourth page of the cover of the Supplement.

A FOSSIL ARMADILLO FROM TEXAS

The American Museum Journal

VOL. II. MARCH, 1902 No. 3.

THE Annual Meeting of the Trustees of the Museum was held on Monday evening, February 10. The report of the Treasurer showed that there had been disbursed for maintenance, $147,773.75, which was $17,773.75 more than had been appropriated for this institution by the City. The deficit, however, had been met by the contributions of the Trustees, which enabled the Museum to begin the current year free of debt. The subscriptions for the increase and improvement of the collections and for publication amounted to $141,452.13, of which $37,500 was received from the Trustees and $11,500 was derived from gifts made by numerous other contributors. The remainder of the sum total was in the nature of funds subscribed for expeditions in the field, for specific branches of the Museum's work and for the purchase of special collections.

The expeditions maintained during 1901 were the Jesup North Pacific expedition; the Hyde expeditions in the southwestern States and in Mexico, supported by Messrs. B. T. Babbitt Hyde and F. E. Hyde, jr.; expeditions for archæological research in the Delaware Valley, supported by Dr. Frederick E. Hyde; the Mexican expedition under the patronage of the Duke of Loubat; an expedition in the Far East for the collection of material illustrating the life and customs of the Chinese; an expedition throughout the western States in search of specimens for the formation of series showing the evolution of the horse, the cost of which was met by Mr. William C. Whitney; the Andrew J. Stone expedition to the Northwest for the purpose of obtaining specimens of the large game animals of the continent; expeditions from the Department of Vertebrate Palæontology to Wyoming, Colorado and other parts of the West for fossil

reptiles and mammals; an expedition to the Selkirks for birds; one to South Dakota and Wyoming for fossil invertebrates, and one to the Black Mountains of North Carolina for insects.

Among the notable acquisitions received during the year there may be mentioned a unique and valuable collection of gold coins to the number of eight hundred from the Philadelphia mint, presented by Mr. J. Pierpont Morgan; the Briggs collection of Indian basketry, presented by Mr. George Foster Peabody; a series of Ainu objects made by Prof. Bashford Dean, and presented by Mr. Arthur Curtiss James; a large collection of shells donated by Mr. Frederick A. Constable; large additions to the Hoffman collection of Butterflies by the Very Rev. Eugene A. Hoffman ; the Sennett collection of eight thousand birds; the Dorenburg collection of Mexican antiquities, and a large collection of Indian objects.

The scientific staff of the Museum has been active along the line of publication, having issued during the year six parts of the quarto Memoirs, Part IV (conclusion) of Volume XI, Volume XIV and Part I of Volume XV of the Bulletin and eight numbers of the American Museum Journal. Four of the Memoirs emanated from the Anthropological Department, one from the Entomological Department and one from the Depart ment of Vertebrate Palæontology.

Mr. Morris K. Jesup was elected President for the twenty-second term; Mr. Wm. E. Dodge and Professor Henry Fairfield Osborn were re-elected First and Second Vice-Presidents, respectively; Mr. Charles Lanier was re-elected Treasurer, and Professor Hermon C. Bumpus was made Director.

A FOSSIL ARMADILLO FROM TEXAS.

ONE of the most valuable and interesting finds made by the American Museum Texas expedition of 1901 was that of a nearly complete carapace, or shell, the tail-pieces and part of the internal skeleton of a Glyptodont. The specimen was found by the writer in the side of a bluff of "Bad Lands" at Mount

Blanco, Texas. The only portions visible at first were a few small pieces of the scutes or scales that had been washed away and lay uncovered at the bottom of the little ravine, below where the main part of the skeleton still reposed in its original bed or matrix, but so completely hidden by the loose material and bunches of grass that covered the hill-side that it was only by diligent search that it was discovered.

This queer animal belonged to a family of Edentates allied to the living armadillos. It was, however, much larger than the armadillo and differed from that animal in having a perfectly rigid armor or shell. The armadillo has the plates of its armor fastened together in certain places in a manner to make them slightly movable one upon the other, enabling the animal to curl up in his shell, somewhat after the manner of a porcupine. The carapace of this Glyptodont from Texas is about four feet long, and the tail-piece is about two and one-half feet in length, hence the total length of the animal in life, from the point of the nose to the tip of the tail, must have been between seven and seven and one-half feet.

This unique specimen is of particular scientific interest, since it is the first one of this extinct family, sufficiently well preserved to show any of its characters, found so far north in this country. Remains of species of Glyptodonts are very abundant in South America.

J. W. GIDLEY.

THE INTERNATIONAL CONGRESS OF AMERICANISTS.

AT the twelfth International Congress of Americanists held in connection with the Universal Exposition at Paris in 1900, it was voted to accept the invitation of Mr. Morris K. Jesup to hold the thirteenth congress of the association in the halls of the American Museum from the 20th to the 25th of October next. Last November, Mr. Jesup, as president of the commision of organization of the meeting, issued an invitation to all the Americanists in the world to join the congress, the object of the

convention being, in the words of the circular of invitation, "to bring together students of the archæology, ethnology and early history of the two Americas, and by the reading of papers and by discussions to advance knowledge of these subjects."

The subjects to be discussed by the Congress relate to—

I. The Native Races of America: their Origin, Distribution, History, Physical Characteristics, Languages, Inventions, Customs and Religions.

II. The History of the Early Contact between America and the Old World.

To make the preliminary arrangements for the congress and the discussions pertaining to the foregoing topics, President Jesup appointed a special committee, consisting of the heads of the departments of Anthropology in the American Museum, and invited the American Association for the Advancement of Science through its section of Anthropology to advise and coöperate with that committee in selecting a general commission of organization, representative of the leading institutions in the United States at which work in Anthropology is being done.

The officers of the Commission of Organization are as follows: President, Morris K. Jesup; Vice-President, The Duke of Loubat; General Secretary, M. H. Saville; Treasurer, Harlan I. Smith.

The list of the members of the General Commission and the institutions which they represent is: Franz Boas, Columbia University; E. G. Bourne, Yale University; Charles P. Bowditch, American Antiquarian Society; John C. Branner, Leland Stanford Junior University; J. V. Brower, Minnesota Historical Society; H. C. Bumpus, American Museum of Natural History; Sydney H. Carney, Jr., New York Historical Society; A. F. Chamberlain, Clark University; T. F. Crane, Cornell University; Stewart Culin, University of Pennsylvania, American Philosophical Society and Numismatic and Antiquarian Society of Philadelphia; George A. Dorsey, Field Columbian Museum; G. T. Emmons, U. S. Navy; Livingston Farrand, New York Academy of Sciences; J. Walter Fewkes, American Association for the Ad-

vancement of Science; Geo. P. Garrison, Texas State Historical Association; D. C. Gilman, Johns Hopkins University; Charles S. Gleed, Kansas State Historical Society; Stansbury Hagar, Brooklyn Institute of Arts and Sciences; Henry W. Haynes, American Academy of Arts and Sciences and Massachusetts Historical Society; F. W. Hodge, Smithsonian Institution; Levi Holbrook, American Geographical Society; W. J. Holland, Carnegie Museum; W. H. Holmes, U. S. National Museum; A. L. Krœber, University of California; Otis T. Mason, Columbian University; W J McGee, National Geographic Society; Clarence B. Moore, Academy of Natural Sciences of Philadelphia; Edward S. Morse, National Academy of Sciences; W. W. Newell, American Folk-Lore Society; A. S. Packard, Brown University; G. H. Perkins, University of Vermont; J. W. Powell, Bureau of American Ethnology; F. W. Putnam, Harvard University; William B. Scott, Princeton University; Frederick Starr, University of Chicago; J. J. Stevenson, New York University; R. G. Thwaites, State Historical Society of Wisconsin; John Williams White, Archæological Institute of America; Jas. Grant Wilson, American Ethnological Society; Thomas Wilson, Anthropological Society of Washington; Talcott Williams, American Historical Association.

Since the Congress of Americanists has never before met in this country, a brief statement relating to its history and its objects will be of interest in this connection. For several years prior to 1857 there were several gentlemen living in France who were especially interested in the pre-Columbian history of North and South America, particularly in relation to the ancient civilizations of Mexico and Peru and the theories regarding the peopling of the New World. In order further to encourage research on these and kindred subjects pertaining to America, a society was organized in that year under the name, "La Société Américaine de France."

This association flourished to such a degree that its members conceived the idea of assembling an International Congress of Americanists to meet in Nancy, France, in 1875. The meeting at Nancy was attended by representatives of various countries,

and statutes were adopted which established the broader organization on a firm basis. Biennial meetings were held at first, and the place was selected by the council of the "Société Américaine de France"; later, the place and time of the meeting were determined by the Council of the Congress. Sessions of the Congress have been held at irregular intervals, first at Nancy, then at Luxemburg, Brussels, Madrid, Copenhagen, Turin, Berlin, Paris, Huelva, Stockholm, Mexico and again at Paris in 1900.

In acknowledgment of the international character and importance of these gatherings of students of ancient American history, the Congress has in several instances been directly under royal patronage, and everywhere great consideration has been accorded to the members, and high honor bestowed upon the Congress. The Presidents of the Congress have been men distinguished for their work in some of its sections. A volume is published after each meeting containing a résumé of the proceedings of the Congress and a number of the important papers read at the meeting.

With a full appreciation of all that the meeting of the Congress implies, the American Museum of Natural History will strive to do its part, as host, to make the coming meeting a successful one. The great collections in American archæology and ethnology, and the opportunities for comparative study which the Museum offers, with its corps of workers to give assistance, should induce many foreign Americanists to visit this continent, which is the field of their investigations, while to all who come, whether from this country or abroad, a most hearty welcome will be extended.

LAST month the Department of Vertebrate Palæontology placed on exhibition in its hall a remarkable specimen of an extinct Dog from Skillet Cik Donley Co., Texas, which has been described by Dr. W. D. Matthew under the name *Dinocyon Gidleyi*. The animal is the largest of the dog family thus far described and belongs to an extinct race resembling in many respects the bears. It must have equalled or exceeded the polar bear in size. The specimen consists of the skull with a con-

siderable part of the spinal column attached and parts of two bones of the leg. It may be found in Case 8 on the north side of the hall. A restoration of the head of the animal has been made in water colors by Mr. Charles R. Knight and is exhibited in connection with the specimen.

HYPOCEPHALUS ARMATUS DESMAREST.

A SPECIMEN of the remarkable Beetle, *Hypocephalus armatus* Desmarest, has been purchased recently by the Museum and has been placed on exhibition in the gallery of the East Wing (Hall No. 302). The creature is a native of Brazil, where it lives in the roots of one of the plants of the tropical forest, probably confining itself to one kind of plant. The species has given rise to considerable controversy among scientists, and there have been more divergent opinions expressed regarding its systematic position and relationships than those of any other form of beetles known. In form and structure it is very different from any other member of the order Coleoptera, though its general external appearance is somewhat like that of the mole-cricket (*Gryllotalpa*). Without going deeply into anatomical details, the principal features which characterize this creature are the large prothorax, which equals in length and bulk the hinder portion of the body; the five-jointed tarsi; the enormously developed hind femora; the form of the mandibles; the manner in which the head is

joined to the thorax; the short antennæ, and the legs, which are adapted to digging. This insect was first described in 1832 by Desmarest, and it has been generally conceded by entomologists that it forms a distinct genus and even family of Coleoptera. The species is considered to be a remnant or fragment of a very old fauna, otherwise unrepresented among living forms. The illustration given herewith is about six-fifths natural size.

W. BEUTENMÜLLER.

LECTURES IN MARCH AND APRIL.

THE City Board of Education has provided the following courses of illustrated lectures for March and April.

Saturday evenings, on physical geography:

March 1.—JACQUES W. REDWAY, "Life of a World." An explanation of some important facts in geology.

March 8.—JACQUES W. REDWAY, "Industrial Regions of the United States."

March 15.—RICHARD E. DODGE, "Man's Relation to Rivers and River Valleys."

March 22.—RICHARD E. DODGE, "Man's Relation to Mountains and Plains."

March 29.—RICHARD E. DODGE, "Life in the Deserts."

April 5.—CYRUS C. ADAMS, "Great Ports of the World."

April 12.—JOHN W. MOYER, "How to Know the Common Trees."

April 19.—JOHN W. MOYER, "Where Lumber Comes From."

April 26.—MISS LOUISE KLEIN MILLER, "Home Gardening."

Tuesday evenings, on the geography of North America:

March 4.—JOHN P. CLUM, "Alaska."

March 11.—S. T. WILLIS, "The Mississippi Valley and the Southern States."

March 18.—H. L. BRIDGMAN, "Seeking Peary and the Pole."

March 25.—W. E. MEEHAN, "Pennsylvania."

April 1.—EGERTON R. YOUNG, "In the Land of the Red Men, as they Were and Are. With Glimpses of Prairies, Mountains, Lakes and the Glorious Northern Auroras."

April 8.—W. E. MEEHAN, "Florida."

April 15.—JOHN P. CLUM, "In the Wake of the Setting Sun."

April 22.—W. E. SIMMONS, "The Nicaragua Canal."

April 29.—JOHN C. BOWKER, "Hawaii."

The doors of the lecture hall will be opened at half-past seven, and the lectures will begin promptly at eight o'clock.

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The American Museum Journal

EDMUND O. HOVEY, *Editor.*

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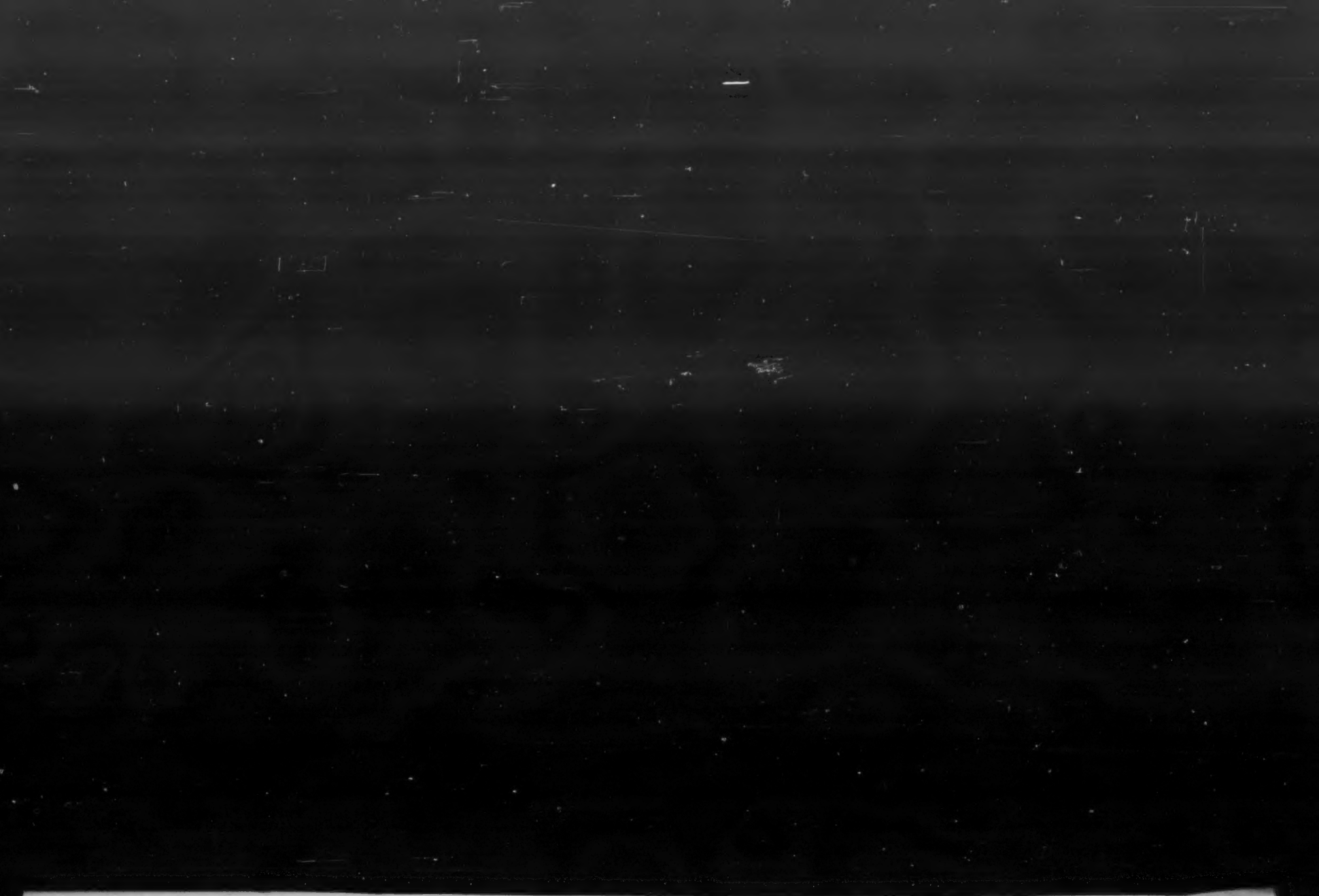
CONTENTS, VOL. II, No. 3

PAGE

ANNUAL MEETING OF THE BOARD OF TRUSTEES 23
A FOSSIL ARMADILLO FROM TEXAS. By J. W. GIDLEY (*Illustrated*) . 24
INTERNATIONAL CONGRESS OF AMERICANISTS 25
NEWS NOTE 28
HYPOCEPHALUS ARMATUS. By WM. BEUTENMÜLLER (*Illustrated*) . 29
LECTURE ANNOUNCEMENTS 30
NORTH AMERICAN RUMINANTS. By. J. A. Allen . . . Supplement



AMERICAN MUSEUM OF NATURAL HISTORY

North American Ruminants

BY

J. A. Allen, Ph.D.

Curator, Department of Mammalogy and Ornithology

SUPPLEMENT TO AMERICAN MUSEUM JOURNAL
VOL. II, No. 3, MARCH, 1902
Guide Leaflet No. 5

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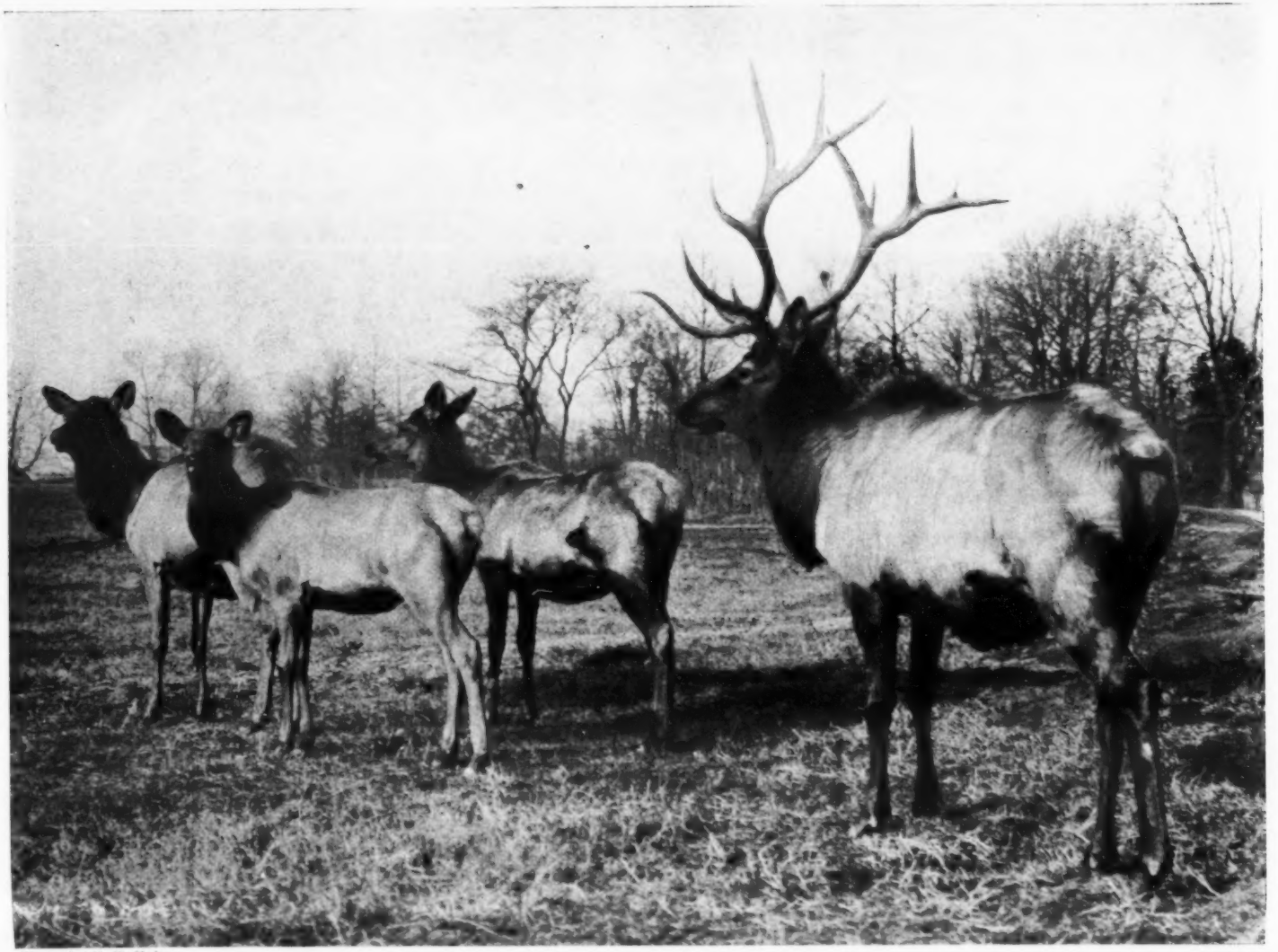
Publications

The publications of the Museum consist of an 'Annual Report,' in octavo, about 80 pages; the 'Bulletin,' in octavo, of which one volume, consisting of about 400 pages, and about 25 plates, with numerous text figures, is published annually; the 'Memoirs,' in quarto, published in parts at irregular intervals; an 'Ethnographical Album,' issued in parts, and the 'American Museum Journal.'



Photo, by E. F. Keller

ELK OR WAPITI. NEW YORK ZOÖLOGICAL PARK

NORTH AMERICAN RUMINANTS.

By J. A. Allen, Ph.D.,

Curator, Department of Mammalogy and Ornithology.

Introduction.

The Ruminants of North America comprise the Deer, the Pronghorn Antelopes, the Bighorn or Mountain Sheep, the Mountain Goats and the Bison or "Buffalo." They are all "game animals," and, like the game animals of all parts of the world, they are, in many instances, rapidly approaching extermination. The Bison, once so abundant on our western plains, is now almost an animal of the past. The Elk or Wapiti Deer has been exterminated over probably nine-tenths of its former range; the Pronghorn, the Virginia Deer and the Mule Deer have also become greatly restricted, as has the Moose. Even the Caribou and the Musk-Ox in the far North are being slaughtered annually by the thousand, and are becoming exterminated over extensive areas where they were formerly abundant.

The partial extermination of large mammals is inevitable, as the country becomes settled, and the land is required for agricultural purposes, but in this country the waste of animal life has been enormous and inexcusable. The Buffalo was slaughtered by the million long before its haunts were needed for settlement, partly for its hide and partly to afford sport for the big-game hunter. The slaughter of the Elk in the trans-Mississippian territory has been almost equally needless and extensive. The Rocky Mountain Bighorn has been wiped out of existence over large portions of its natural range, and now the destruction of the Caribou and Moose in the far North is proceeding with almost incredible rapidity, not only in the regions invaded by the miner and prospector, but also along the Arctic coast for the supply of whale ships with fresh meat. Doubtless some of the strongly marked climatic races of the Deer tribe have been wholly destroyed, with no specimens in our museums to testify to their former existence.

ELK OR WAPITI, NEW YORK ZOÖLOGICAL PARK

Photo. by E. F. Keller

Owing to the large size of these animals and the consequent difficulty and expense of obtaining and preparing them, very few specimens have found their way to museums, and no time should be lost in obtaining such series as will adequately represent them, since it will soon be too late to secure the animals even for museum purposes. A single specimen or a pair of specimens is insufficient for the purpose, since each species varies greatly in color according to season and in other characters according to age and sex. Our large museums owe it to posterity to see that these animals are suitably represented, preferably mounted as groups with their natural surroundings, and in large series for the purposes of research and to draw upon later for exhibition, since it unfortunately happens that specimens exposed to light as museum exhibits quickly deteriorate by fading and from other causes, and eventually require replacement by fresh material.

Horns and Antlers of Ruminants.

The Ruminants are herbivorous, cud-chewing animals; they include the Deer, the Pronghorns, the Antelopes, the Sheep, the Goats and the Ox tribe, and hence nearly all of the mammals most economically important to man. They form two quite distinct divisions according to the nature of their horns, these divisions being known respectively as Solid-horned Ruminants and Hollow-horned Ruminants, and also as Antlered Ruminants and Horned Ruminants. The first section includes the Deer and Pronghorns, and the other the Antelopes and the Sheep, Goat and Ox tribes. The antlers of Deer consist of nearly homogeneous bony tissue, lighter and more porous in structure than ordinary bone; are generally much branched or forked, and are shed and renewed every year. They are secondary sexual organs, usually present only in the male, and when existing in the female, as in the case of the Caribou, they are greatly reduced in size. They are shed soon after the rutting season, and are renewed by a wholly new growth, acquired slowly, so that the fully grown and perfected antler is worn for only a few months. During growth it is enclosed in a soft membrane,

Antlers of Deer.

covered externally with short, thick, velvety fur, which consists of a network of blood vessels which supply nutriment for the growth of the antler. During this stage the antlers are said to be "in the velvet," and are then very sensitive to injury. When fully grown, the membranous covering shrivels and dries up, and falls off in shreds or is rubbed off by the animal.

Horns of Oxen, Sheep, etc.

The horns of the hollow-horned Ruminants are entirely different from the antlers of Deer, in structure as well as in manner of growth. They are usually common to both sexes, as in our domestic cattle, are simple and not branched, and grow continuously throughout the life of the animal, though very slowly after it has reached maturity, and are never shed. They consist of a bony core—an elongated process from the frontal bone—covered with horn, from which the organ takes its name, and which is easily removed by maceration, or through decomposition after the death of the animal. This outer shell is the true horn, the bony core is its support.

The American Pronghorns offer a *quasi* exception to this division of Ruminants into solid-horned and hollow-horned sections. They have the permanent bony horn-core of the hollow-horned division, with an outer horny sheath, which is annually shed and renewed, as are the solid antlers of the Deer tribe. They are, however, usually assigned to the solid-horned or antlered section of Ruminants.

Families of North American Ruminants.

Technically speaking, the Ruminant game animals of North America consist of three distinct families, two of which are represented by several genera, and some of the genera by numerous species. These families are, the Pronghorns, family *Antilocapridæ;* the Deer, family *Cervidæ*, and the Sheep, Goat and Ox tribes, forming the family *Bovidæ*. These will be now passed in review, with special reference to their present representation in the American Museum. The geographical area covered in this connection by the term North America includes the whole North American continent from the Arctic regions to Panama.

Photo. by E. F. Keller

PRONGHORN OR AMERICAN ANTELOPE. NEW YORK ZOÖLOGICAL PARK

(From negative taken for Department of Public Instruction, American Museum)

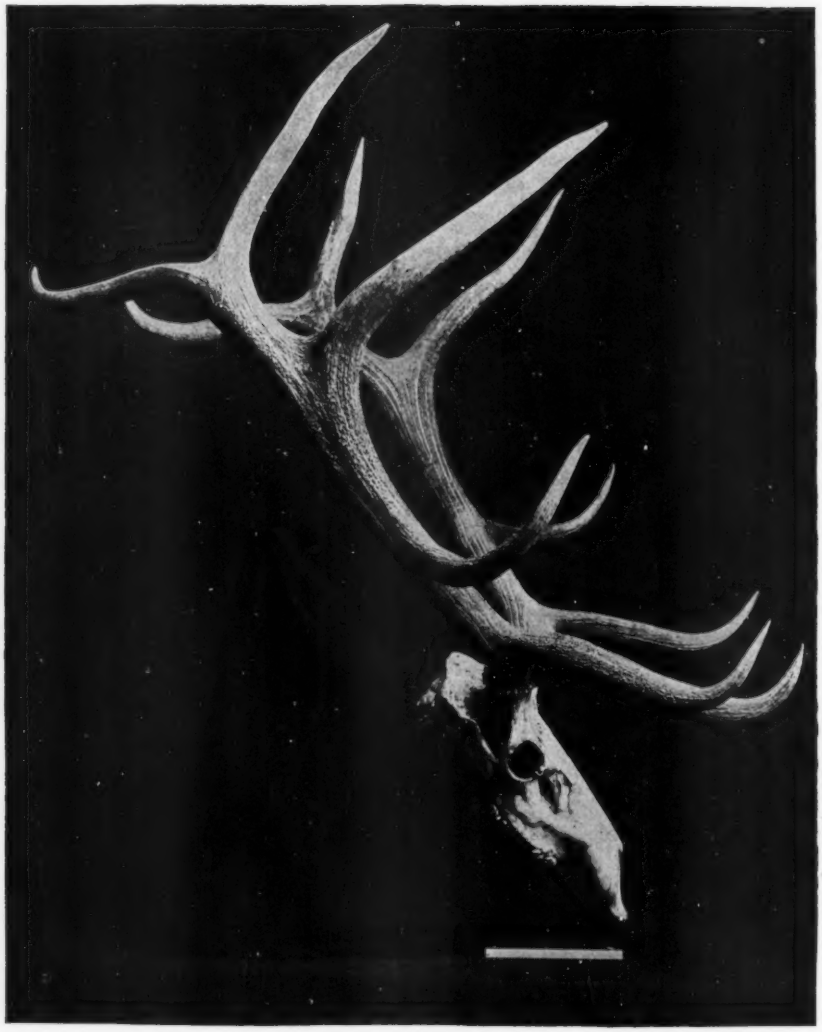
NORTH AMERICAN RUMINANTS

Antlered Ruminants.

The Pronghorns, or Pronghorn Antelopes, or American Antelopes, as they frequently are called, formerly had a range which extended from the Saskatchewan region southward over the plains, parks and portions of the Great Basin region to the tablelands of Mexico, their eastern limit being the eastern border of the Great Plains. Over this vast area they formerly ranged in large herds, numbering hundreds and often thousands of individuals, but they have now disappeared entirely from a large portion of this great region, being found in their former abundance only within comparatively limited districts. Two forms of Pronghorn are now recognized by naturalists—a northern and a southern, the latter at present confined to a small area in Mexico. The Pronghorn, though often called the "American Antelope," is not a true Antelope, as once supposed, but is a distinct family type, found only in North America. It is one of the most beautiful, graceful and agile of American game animals, gentle, and possessed of great curiosity, advantage of which is often taken to secure its destruction. Unless strenuously protected, it will soon whol y disappear from our western mountain valleys and plains. **Pronghorn.**

The Pronghorn is represented in the Museum by a pair of mounted specimens and a mounted skeleton, and in the study collection by a small series of skins and skulls. Owing to the peculiar interest of this very distinct type, it should be elaborately presented to the public as a group, with the proper setting to illustrate its natural haunts.

The Deer tribe consists of five groups, commonly recognized as genera, namely: the Elk, genus *Cervus;* the small Deer of the United States and Mexico, genus *Dama* (recently known, successively, as *Cariacus*, *Dorcelaphus* and *Odocoileus*); a smaller kind of Deer or Brocket, with unbranched antlers, of the genus *Mazama*, found only in Central America; the Moose, genus *Alces*, with broad palmate antlers, and the Caribou, genus *Rangifer*, of which four or five very distinct forms are known. **North American Deer.**



ELK OR WAPITI, NORTH DAKOTA
(From Bulletin American Museum, Vol. XVI, 1902, p. 5)

ARIZONA ELK
(From Bulletin American Museum, Vol. XVI, 1902, p. 4)

NORTH AMERICAN RUMINANTS

The Elk, or Wapiti Deer, is one of the largest and most stately of the Deer tribe, with very large, branching antlers and a magnificent pose. This animal formerly ranged eastward nearly or quite to the Atlantic coast of the Middle States, but now it practically is extinct east of the Rocky Mountains and is becoming greatly reduced in numbers throughout the western natural parks and valleys, where not many years ago it roamed in large bands. This type of Deer formerly extended southward to the northern border of Mexico, occupying isolated areas wherever the conditions of the country favored its existence. The eastern form probably differed considerably from the animal of the plains and Rocky Mountain region, but how and to what extent it was distinct will never be determined, owing to the entire absence from our museums of specimens from the eastern part of the United States.

Elk, or Wapiti.

A darker western form, known as the Roosevelt Elk, is still found in small numbers in the coast ranges of Oregon, Washington and British Columbia. It is much darker in color, and differs somewhat in the character of the antlers from the Rocky Mountain form. A southern form, almost extinct, has been described recently from Arizona, which differs from the others in color and in the form of the antlers. Of the Rocky Mountain Wapiti, the Museum has several poor mounted specimens, a mounted skeleton and several specimens in the study collection, mostly animals which had been in captivity and which have been received from zoölogical gardens. Of the Roosevelt Elk, the Museum recently has purchased a series of five specimens for mounting as a group, but the Arizona form is represented by a single skull. It is very desirable that the mounted specimens should be replaced by better examples, and the Arizona Elk obtained, if possible.

Roosevelt Elk.

The Moose, perhaps the largest of the Deer tribe, being heavier bodied than the Elk, but with less branching though much broader antlers, is found from northern New England, northern Minnesota and Montana northward nearly to the Arctic regions. The Moose of the eastern districts is already represented in the Museum by a group of specimens, ob-

Moose.

tained mostly in New Brunswick and mounted with great care and proper setting, the accessories representing an autumn scene in the actual haunts of the animal. This group, the most elaborate of its kind in the world, and the method of its construction

ALASKA MOOSE (ALCES GIGAS)
From mounted specimen in Museum. Andrew J. Stone Expedition

will be described at length in a subsequent supplement to the JOURNAL. The Moose found in Alaska differs from the eastern Moose in its somewhat larger size, darker coloration and more massive antlers. It has been called *Alces gigas*, in reference to

NEWFOUNDLAND CARIBOU (RANGIFER TERRÆNOVÆ)
Mounted specimen in American Museum
(From Bulletin American Museum, Vol. VIII, 1896, pl. x)

KENAI CARIBOU (RANGIFER STONEI)
Mounted specimen in American Museum. Andrew J. Stone Expedition
(From Bulletin American Museum, Vol. XIV, 1901, p. 144)

its large size. The largest antlers have the remarkable spread of seventy-eight inches. The Museum is fortunate in the possession of a good series of this type of Moose, suitable for mounting as a group or as single specimens. For this valuable material we are indebted to the Andrew J. Stone expedition, for the maintenance of which the necessary funds have been generously contributed by friends of the Museum.

Caribou.

The Caribou are even more boreal than the Moose. They range next in size to it and the Elk, and have graceful, slender, profusely branching antlers. They are found from northern New England and British Columbia northward to the Arctic coast, and they occur also in Greenland. While the different varieties present general similarity, they differ greatly in size and in style of antlers, according to the regions they inhabit. The Newfoundland Caribou is an insular form restricted to the island from which it has received its name. It is characterized by short, heavy, much-branched antlers and very light coloration. Of this species the Museum has several mounted specimens, but it is especially desirable that it should be illustrated by a group.

Woodland Caribou.

The Woodland Caribou, as its name implies, inhabits the woodlands of the colder parts of eastern North America. It is a large dark form, with rather stout antlers. The Greenland and Barren Ground Caribou are both small forms, with relatively long but very slender antlers. They are of special interest as representing the most northern type of the Deer tribe, their homes being the treeless Arctic tundra. Neither form is at present well represented in the collection.

Mountain Caribou.

The Mountain Caribou is found in the Rocky mountains from British Columbia northward; it is represented in the mounted collection by a fine adult male. It is one of the largest members of the group, of very dark color and with massive antlers. In Alaska, there appear to be two other phases of this plastic group, one very large and the other small, with small, rather delicately formed antlers. This latter form is now represented by a good series of specimens, just

received from the Stone expedition, which will be mounted in a group as soon as the means for its construction have been provided.

The Deer constituting the genus *Dama* are much smaller and more graceful and are more delicately formed than the Caribou and Moose. They are typically represented by the common eastern or Virginia Deer, and are very numerous in species and subspecies, many of which are quite restricted in distribution. Those of the United States fall into three groups, commonly known as White-tailed Deer, Mule Deer and Black-tailed Deer. The White-tailed Deer embrace the Virginia Deer and its related subspecies, of which four or five are now currently recognized, which differ from one another in size and in minor details of coloration. The Deer, like many other animals, decrease notably in general size, and in the size of the antlers, from the north southward, and are thus separable into well-marked races; the Florida Deer, for example, being not much more than half as heavy as the Deer found in Maine and New Brunswick. Another form of the group is found on the plains, another in Texas and still another in Louisiana.

Virginia Deer.

The Mule Deer, so called from the large size of the ears, occupy the middle region of the continent from Canada to Mexico, but are typically represented by the form found in the Dakotas. There are other subspecies in Manitoba, California, Sonora, Mexico and the islands off the coast of California.

Mule Deer.

The Black-tailed Deer, found only on the Pacific slope from California northward to Sitka, are represented by a series of forms. On comparing specimens from Sitka with those from Southern California, the differences in size and color are very striking.

Black-tailed Deer.

Besides the Deer already mentioned, five species of this genus are found in Mexico. In comparison with the Virginia Deer they are exceedingly small, with the antlers greatly diminished, being, in fact, miniature representatives of the more northern forms of the genus. In Costa Rica there is another type of small Deer, in which the antlers are

Mexican Deer.

reduced to a single tine only a few inches in length. This Deer belongs to a South American group of the genus *Mazama*, not otherwise represented north of the Isthmus of Panama.

VIRGINIA DEER
From the group in Local Collection, American Museum

In brief, there are between twenty-five and thirty species of small Deer found in North America, including Mexico, of which

only six are represented in the Museum. Of these the eastern or Virginia Deer is exhibited in a group in the Local Collection, and there are two or three other mounted specimens in the North American collection. The five other species are represented by single specimens, several of them very poorly mounted; consequently, it may be said that, comparatively speaking, the Museum is

Number of Deer in North America.

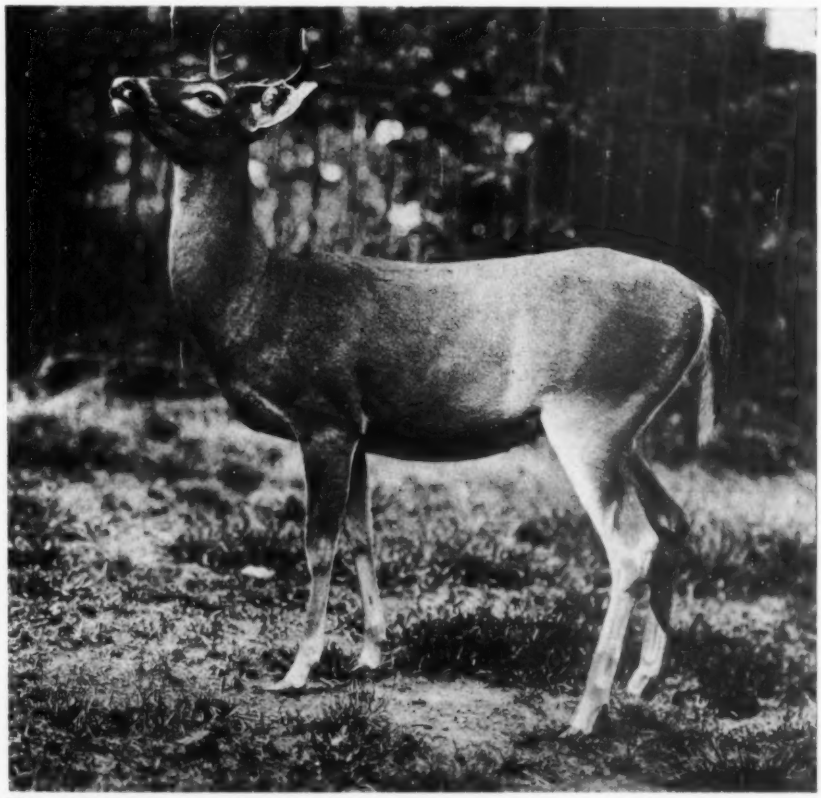


Photo. by E. F. Keller

MEXICAN DEER. NEW YORK ZOÖLOGICAL PARK

(From negative taken for Department of Public Instruction, American Museum)

almost destitute of the Deer of this extensive group, only a small part even of those found in the United States being shown in the exhibition series.

The Deer are subject to much greater variations due to season than most other large mammals, and vary also greatly with age.

Variations in Deer due to Season.

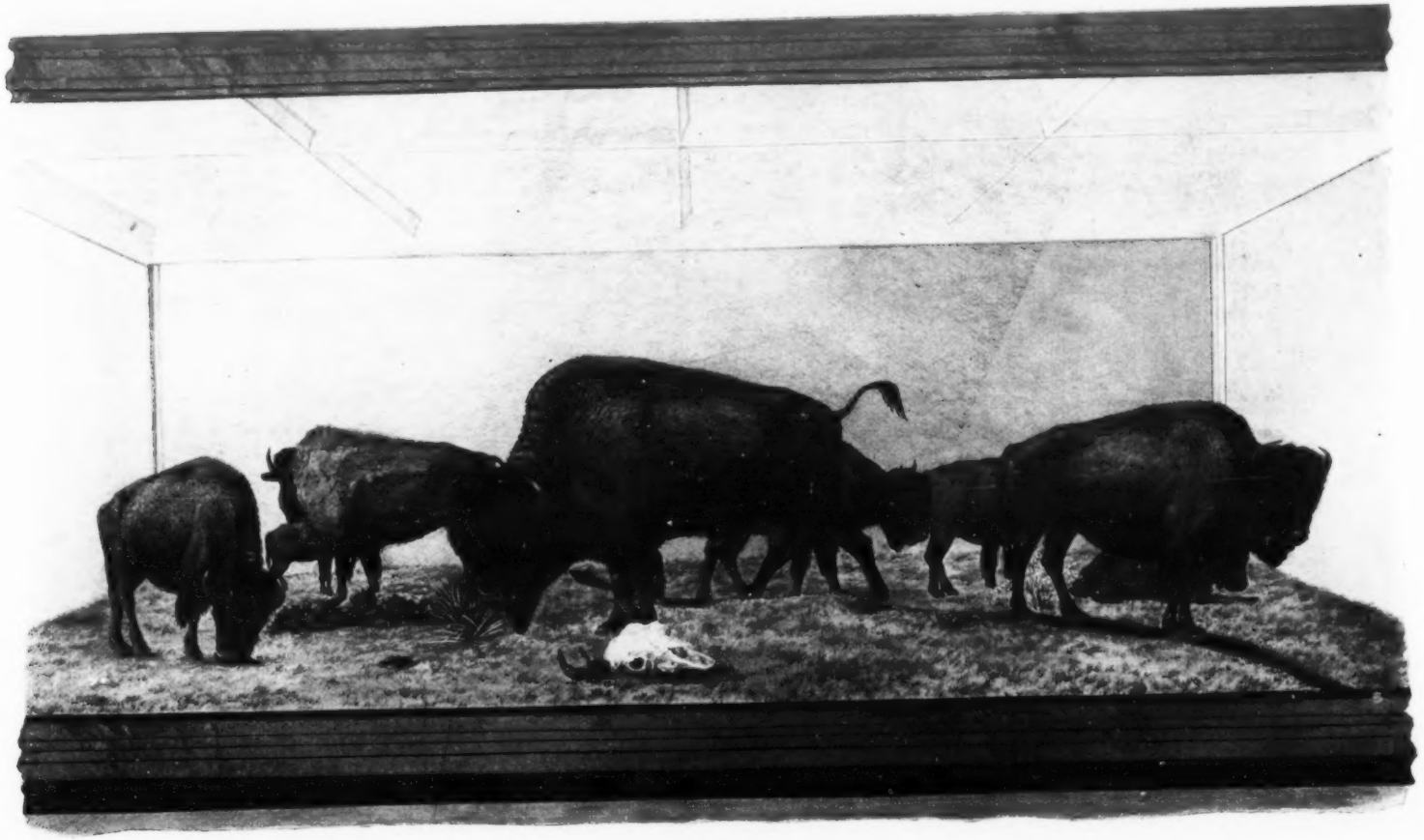
The young of the Elk and of all the smaller Deer are, at first, bay spotted with white. After a few months they change their dress for one of a more uniform and wholly different tint, while the adults have a summer dress very different from that worn in winter. The summer coat is short and comparatively fine in texture and generally is of some shade of yellowish brown or "fawn color." At the approach of winter this is succeeded by new hair of a bluish cast, which later becomes brownish gray through the addition of the long, coarser hair that forms the winter coat. The exact tint varies with the species, but the fall and winter coats are always very different in general effect from the dress of summer. The summer coat is commonly termed, in hunter's parlance, the "red coat" and the fall dress the "blue coat."

Besides the differences due to a change of coat with the change of the seasons, there are other differences due to age, as in the size and shape of the antlers, their absence in the females at all seasons, and their presence in the males during a portion of the year, and the very different appearance of the antlers when "in the velvet" and when mature. The Deer thus afford very effective material for Museum exhibits, and quite a series of specimens of the same species is required for its proper illustration. Such series, mounted in groups, with proper settings to show the nature of the diverse haunts characteristic of the different species, afford ample range for the skill of the taxidermist and abundant means for the presentation of attractive museum exhibits, pleasing and instructive to the visitor, and form permanent records of species rapidly passing out of existence.

Differences due to Age and Sex.

Horned Ruminants.

Having now passed in review the Deer tribe, we reach the Sheep and Ox tribes. Most prominent of these is the almost extinct American Bison, fortunately well represented in the



AMERICAN BISON

Group in American Museum of Natural History

Museum by skeletons, skulls and skins, in addition to the fine group which forms so conspicuous an exhibit in the North American Hall. Indeed, the Museum is to be congratulated on having not only the finest Bison group in the world, but a large reserve stock of specimens of this rapidly disappearing type, which but a short time ago existed in seemingly

American Bison.

AMERICAN BISON
Cow and calf from group in American Museum
Specimens presented by Col. W. F. Cody

inexhaustible numbers. In the summer of 1871 the author saw on the plains of western Kansas Buffaloes by the hundred thousand, if not by the million. As far as the eye could reach, the plains, on certain occasions, were literally black with Buffaloes.

The hide hunters were already among them, and this was one of the years of their greatest havoc. Three years later these same plains were covered with the bleaching carcasses of these hundreds

STONE MOUNTAIN-SHEEP (OVIS STONEI)
Mounted specimen in American Museum
(From Bulletin American Museum, Vol. IX, 1897, pl. ii)

of thousands of Bisons, from which merely the hides had been removed and the bodies left to rot. In 1873 similar scenes were witnessed in the valley of the Yellowstone, and here again, a few years later, only the carcasses of dead Buffaloes remained,

FIG. 1

FIG. 2

FIG. 1. STONE MOUNTAIN-SHEEP. FIG. 2. ROCKY MOUNTAIN BIGHORN
From mounted specimens in American Museum
(From Bulletin American Museum, Vol. IX, 1897, pl. iii)

together with their well-worn trails, to testify to the former existence of the immense herds seen in 1873. And now, when only a few hundred remain of all the former millions that roamed the central portion of the continent, from Great Slave Lake to Texas, Congress is reported to be considering a bill for the protection of the American Bison!

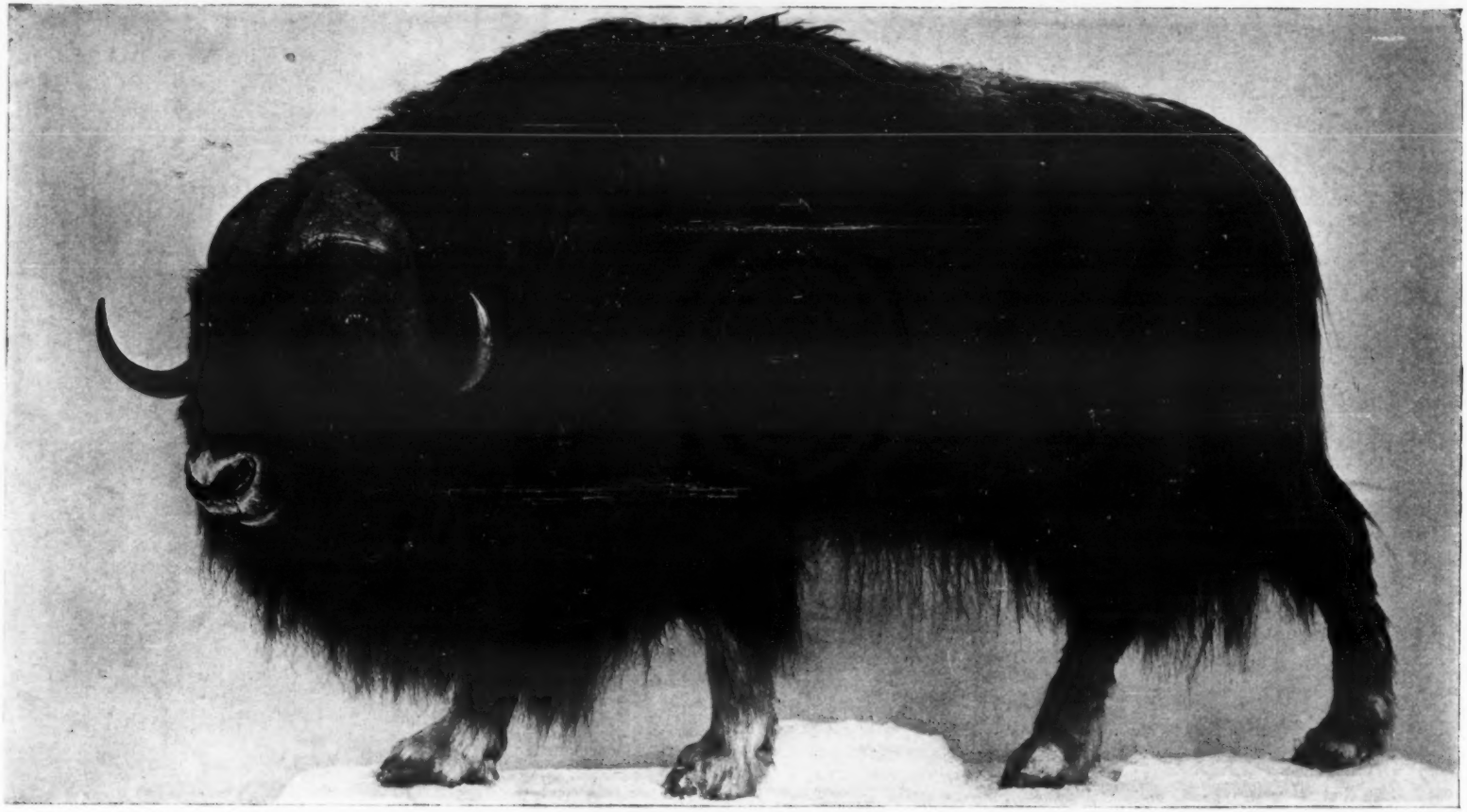
Bighorns, or Mountain Sheep.

The Mountain-Sheep or Bighorns number five species, only one of which is at present well represented in the exhibition collection. This is the Stone Mountain-Sheep from northern British Columbia. Through the Stone Expedition, however, there has just been secured a fine series of the Dall Mountain-Sheep of Alaska, which will furnish material for the illustration of this interesting species by an elaborate group. These two species show the extremes of color in the different kinds of our Bighorns, the Stone Sheep being nearly black and the Dall Sheep, almost pure white. Of the Rocky Mountain Bighorn, the longest known and largest of any of the North American members of the genus *Ovis*, the Museum possesses only a pair of poorly mounted specimens. Efforts have been made and plans elaborated for the construction of a group of this striking species, but the expense of the undertaking has thus far compelled the Museum authorities to postpone any attempt to prepare it.

The southern or Nelson Bighorn, recently described from the Grapevine mountains on the California-Nevada boundary, and the Mexican Bighorn, lately made known from the State of Chihuahua, Mexico, are still desiderata. But the Museum has been fortunate enough to secure an adult of the Fannin Mountain Sheep, discovered the past year near Dawson, Northwest Territory, and known as yet from very few specimens.

Mountain Goats.

The Rocky Mountain Goats comprise two species, one of which has been discovered only recently in the Copper River region of Alaska, and very few specimens of it have as yet reached any museum. The Mountain Goat of the northern United States and British Columbia is represented in our exhibition collection by a single specimen. A group of this species has long been planned, and a few specimens



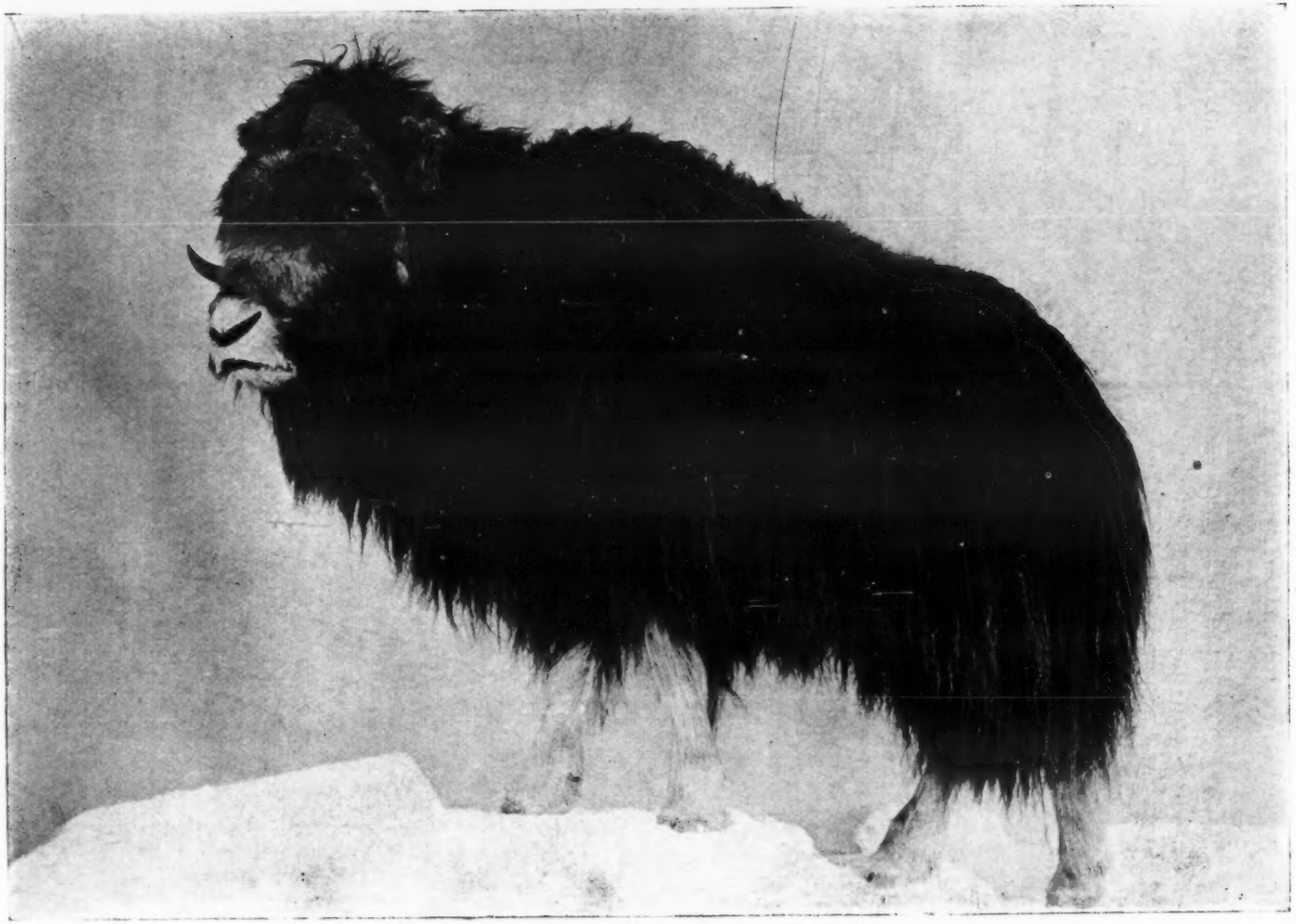
BARREN GROUND MUSK-OX. ADULT MALE
Mounted specimen in American Museum
(From Bulletin American Museum, Vol. XIV, 1901, pl. xii)

have been gathered for it, but not enough to complete the group. The Goats and Sheep are mountain dwellers, and their favorite haunts are the more inaccessible parts of the higher ranges. Yet they have been followed by the hunter into their remotest and most secluded resorts. The Sheep are exceedingly watchful and sagacious, and these traits alone have preserved them from total annihilation. They have been exterminated in the more accessible parts of their ranges, and survive in comparatively small numbers and greatly restricted areas. The Goats were originally much less widely distributed in North America than the Sheep. Their chief protection lies in the inaccessibility of their favorite ranges; since, when once discovered, their safety depends upon the difficulty and danger attending their pursuit rather than upon that keen alertness so characteristic of the Mountain Sheep.

The Musk-Oxen, or Musk-Sheep, as they sometimes are called, are the only remaining members of the Ruminants to be mentioned. They are, however, neither oxen nor sheep, nor very closely allied to either, but are a very distinct type of the hollow-horned section of the Ruminants, entitled to a distinctive name free from the implication of any such alliance. Like the misapplied name Buffalo for the Bison, however, and of Robin for various birds, in different countries, that are not robins, and scores of other misapplied popular names, the term Musk-Ox has so firm a foothold that it is not likely soon to be displaced. The Musk-Oxen are the most exclusively Arctic of all Ruminants, their home being the remote, treeless Barren Grounds of the far North, where vegetation is scanty, and the ground is buried in snow for a large part of the year. Nature has provided the animal with a heavy fleece of soft hair and wool for its protection against the inclemency of the long Arctic winter. The Musk-Oxen are in the last stages of numerical decline; formerly ranging, in comparatively recent geological times, as far south as Kentucky, Missouri and Utah, and over a large part of Siberia to Germany and England, they now are restricted to the Barren Grounds east of the Mackenzie river, the Arctic islands north of Hudson Bay, and a narrow coast strip on both sides of northern Greenland,

Musk-Oxen.

(From Bulletin American Museum, Vol. XIV, 1901, pl. xii)



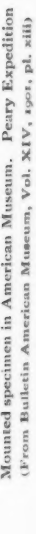
PEARY MUSK-OX. ADULT MALE

Mounted specimen in American Museum. Peary Expedition

(From Bulletin American Museum, Vol. XIV, 1901, pl. xiii)

where their numbers are being rapidly diminished by Indians and Eskimos and by Arctic explorers.

There are two species of Musk-Oxen, the Barren Ground and the Greenland, both of which are well represented in the Museum collection. Six specimens of the Greenland species, secured for the Museum by Lieut. R. E. Peary, have been mounted for a group and are ready for installation as soon as a suitable case can be provided. The Barren Ground species, also, is well represented by mounted specimens, including the young as well as the adult.

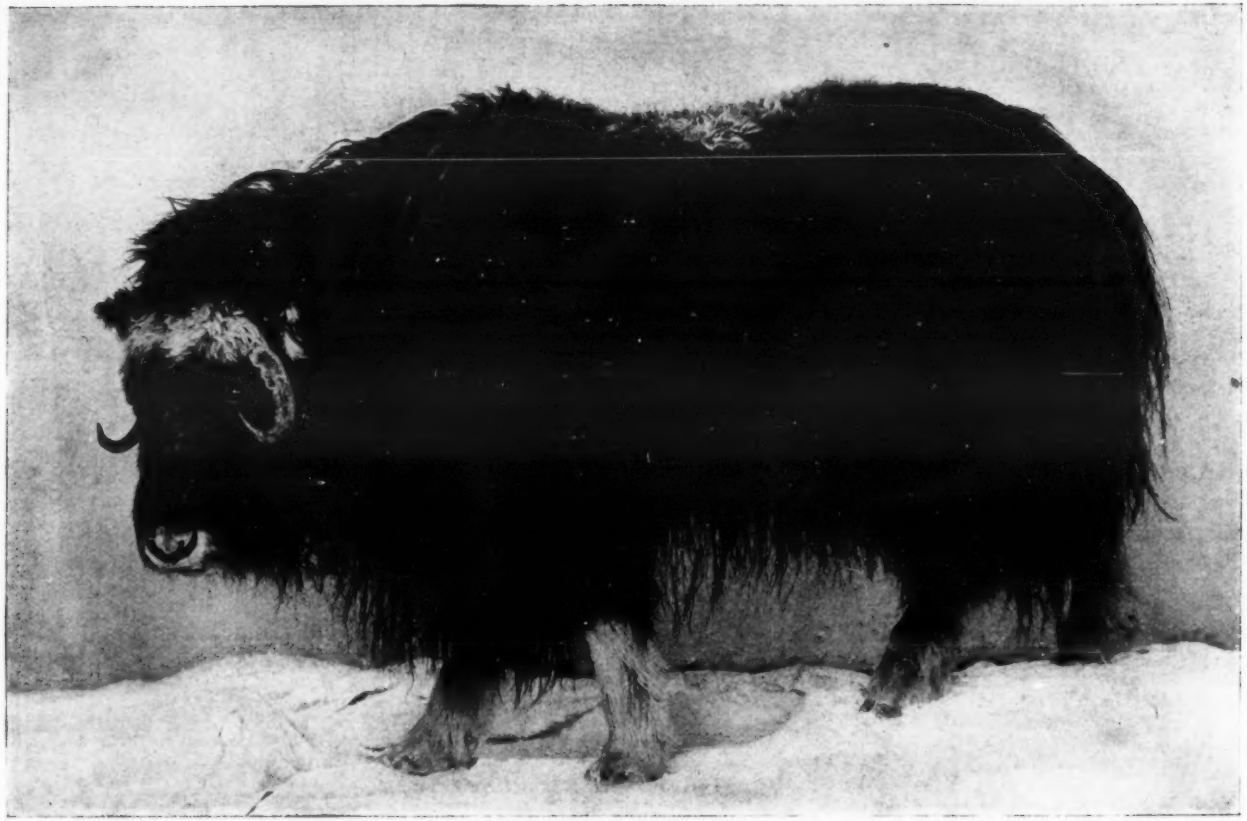


Mounted specimen in American Museum. Peary Expedition
(From Bulletin American Museum, Vol. XIV, 1901, pl. xiii)

From the foregoing it is evident that the Museum is very deficient in the large game animals of North America, many of the forms being entirely absent and others very inadequately represented. It is the wish of the Museum authorities to exhibit each prominent species by a group, planned on a large scale, with proper accessories to illustrate the life habits of the animal; in other words, on the same scale as the present Moose and Bison groups in the North American Hall. The careful construction of these groups implies not only a considerable expenditure of money in procuring specimens of the animals for mounting, but also in furnishing the accessories and making the studies for its setting. The designer of a group should visit the country inhabited by the animals it is intended to illustrate, plan the group in the field, and collect samples of rock, soil and vegetation for use in the construction of the exhibit. In no other way can the results be realistic and satisfactory,— exact representations of nature, which it is the purpose of these groups to reproduce. Since not every specimen is suitable for mounting, a considerable series must be collected or purchased in order to select therefrom material that will be satisfactory.

Exhibits Needed.

NOTE.—The attention of the reader is called to the fact that in the halls of Ethnology, Nos. 105 to 107, on the ground floor of the building, will be found many articles of dress made from the skins of the Deer and other members of the family of Ruminants, also many implements of the chase and of home industries made from the bones and antlers of the Deer, Elk etc. The teeth of some of the Rumi-



PEARY MUSK-OX. ADULT FEMALE

Mounted specimen American Museum. Peary Expedition

(From Bulletin American Museum, Vol. XIV, 1901, pl. xiv)

nants, particularly the so-called "tusks" of the Elk, have been used by the Indians for ornamental purposes. Specimens illustrating such uses will be found in the same halls. The Museum Memoir on the Thompson River Indians, by James Teit, contains descriptions of many such garments and implements, and the specimens therein described are on exhibition in these halls.

The ancestors of the higher Ruminants are mainly of Old-World origin and are comparatively scarce and late in appearance in the fossil beds of our own continent. The following exhibits in the Hall of Fossil Vertebrates, No. 402, on the fourth floor of the Museum, should be examined by the readers of this Guide Leaflet who are interested in evolution:

The Irish Deer, or Irish Elk, (*Megaceros hibernicus* Owen), from near Limerick, Ireland, a form which is related to the recent genus *Dama*. The specimen was presented to the Museum by Prof. Albert S. Bickmore.

A Model, one-fourth natural size, of *Cervalces*, the great Moose-Elk from the Pleistocene beds of New Jersey. The skeleton is in the Princeton museum.

A hind limb of a fossil Bison from the western Pleistocene beds of Nebraska.

The Department of Vertebrate Palæontology has, also, and soon will place on exhibition, the skull and other parts of a skeleton of *Cosoryx*, from the upper Miocene strata of Nebraska, an ancestor of the Pronghorn (*Antilocapra*), and a nearly complete skeleton of *Blastomeryx*, from beds of the same age in Colorado, an ancestral type of Deer more nearly related to *Odocoileus* than to any other, though its exact affinities have not yet been completely determined.—EDITOR.

THE AMERICAN MUSEUM JOURNAL

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No. 2. THE SAGINAW VALLEY COLLECTION. By HARLAN I. SMITH, Assistant Curator of Archæology. December, 1901.

No. 3. THE HALL OF FOSSIL VERTEBRATES. By W. D. MATTHEW, Ph.D., Assistant Curator of Vertebrate Palæontology. January, 1902.

No. 4. THE COLLECTION OF MINERALS. By LOUIS P. GRATACAP, A.M., Curator of Mineralogy. February, 1902.

No. 5. NORTH AMERICAN RUMINANTS. By J. A. ALLEN, Ph.D., Curator of Mammalogy and Ornithology. March, 1902.

American Museum of Natural History.

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Gives free admission to its halls on Wednesdays, Thursdays, Fridays, Saturdays and Sundays.

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What the Museum Needs.

Additional members.

Increased subscriptions to defray expenses of exploring expeditions.

Funds to make additional groups similar to those in the Bird, Mammal, and Ethnology Halls.

Small sums sufficient to preserve the records of the Indians of New York.

Means for collecting and preserving representative examples of animals on the verge of extinction.

Means for collecting fossils and geological specimens.

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